Letter to the Editor

Novel preoperative strategies to improve hepatocellular carcinoma resectability

Francisco Tustumi[1,2]^, Fabrício Ferreira Coelho[1]^, Paulo Herman[1]^

[1]Department of Gastroenterology, Universidade de São Paulo, São Paulo, Brazil; [2]Department of Surgery, Hospital Israelita Albert Einstein, São Paulo, Brazil

Correspondence to: Francisco Tustumi. Av. Dr. Eneas de Carvalho Aguiar 255, São Paulo 05403-000, Brazil. Email: franciscotustumi@gmail.com.

Comment on: Peng Y, Wang Z, Qu X, *et al.* Transcatheter arterial embolization-salvaged ALPPS, a novel ALPPS procedure especially for patients with hepatocellular carcinoma and severe fibrosis/cirrhosis. Hepatobiliary Surg Nutr 2022;11:504-14.

Submitted Aug 21, 2022. Accepted for publication Nov 01, 2022. Published online Jan 16, 2023.
doi: 10.21037/hbsn-22-384
View this article at: https://dx.doi.org/10.21037/hbsn-22-384

Peng *et al.* (1) performed a pretty interesting article, reporting the proposal of a new strategy to improve resectability for hepatocellular carcinoma (HCC). Their findings are exciting.

Preoperative strategies to improve liver resection are methods for promoting future liver remnant (FLR) growth in a timely manner before cancer disseminates. The main strategies are portal vein embolization (PVE) and associating liver partition and portal vein ligation for staged hepatectomy (ALPPS).

More recently, combination strategies have been studied (2). Hepatic vein embolization after PVE, and PVE with transcatheter arterial embolization (TAE) have being proposed to enhance liver hypertrophy (2,3).

Peng *et al.* (1) performed a study in which patients undergoing ALPPS that did not improve a significant FLR volume were managed with TAE with lipiodol. The idea was to enhance liver hypertrophy for HCC patients that failed to reach sufficient hypertrophy after ALPPS. The authors evaluated ten patients, and all of them were resected, with 50% morbidity and 10% mortality.

Peng *et al.*'s rationality is valid. Our previous systematic review (2) found that combination strategies may augment efficacy and showed that TAE would increase the resectability of PVE by 14.3% [95% confidence interval (CI): 8% to 20.6%]. However, the level of evidence in the included original studies was low, and at the time of the systematic review, no published study had evaluated TAE following ALPPS.

Unfortunately, due to the lack of a control group, there is no possibility that Peng *et al.* (1) can attribute the enhanced liver hypertrophy due to TAE. There is the chance that the additional remnant liver increase happens just by waiting one more week for the definitive tumor resection. Most of the liver blood supply comes from the portal system, and only about 20% of liver irrigation comes from arteries, and consequently, TAE may have a limited role in liver hypertrophy (4). In theory, Peng's strategy may be more efficient for cirrhotic patients, whose arterial blood supply is increased to overcompensate the reduced portal flow (hepatic arterial buffer response) (5). However, due to the cirrhotic patient clinical vulnerability, a two steps procedure such as ALPPS may have a significant morbidity and mortality. Consequently, the indication of ALPPS plus TACE must be limited.

Another alternative for increasing HCC resectability yet to be investigated is the TAE followed by ALPPS. As Peng *et al.* (1) outlined, we may slow tumor progression by blocking cancer arteries supply. Consequently, theoretically, by adding the TAE before ALPPS, there would be no need to hurry on the definitive tumor resection, and surgeons could wait even more than 3–4 weeks to perform the tumor resection, giving enough time for the FLR to grow.

An additional up-and-coming alternative is using Yttrium-90 (90Y)-radioembolization. This strategy combines embolization with radiation and may intensify

^ ORCID: Francisco Tustumi, 0000-0001-6695-0496; Fabrício Ferreira Coelho, 0000-0002-5290-8286; Paulo Herman, 0000-0003-2859-5846.

HCC control by destroying viable cancer tissue, favoring tumor progression slowdown.

Future controlled trials are imperative. The best time for TAE in ALPPS (before or after the primary procedure) should be determined. Besides, studies comparing the TAE plus PVE with ALPPS plus TAE are necessary. In our review (2), despite the increase in resectability, ALPPS was associated with a higher risk for morbidity and mortality. Consequently, it would be extremely relevant to bring the most substantial evidence regarding the ALPPS plus TAE efficacy in increasing the resectability and the safety of the procedure compared with other traditional preoperative strategies to improve resectability in HCC.

Acknowledgments

Funding: None.

Footnote

Provenance and Peer Review: This article was a standard submission to the journal. The article has undergone external peer review.

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at https://hbsn.amegroups.com/article/view/10.21037/hbsn-22-384/coif). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

References

1. Peng Y, Wang Z, Qu X, et al. Transcatheter arterial embolization-salvaged ALPPS, a novel ALPPS procedure especially for patients with hepatocellular carcinoma and severe fibrosis/cirrhosis. Hepatobiliary Surg Nutr 2022;11:504-14.
2. Tustumi F, Ernani L, Coelho FF, et al. Preoperative strategies to improve resectability for hepatocellular carcinoma: a systematic review and meta-analysis. HPB (Oxford) 2018;20:1109-18.
3. Niekamp AS, Huang SY, Mahvash A, et al. Hepatic vein embolization after portal vein embolization to induce additional liver hypertrophy in patients with metastatic colorectal carcinoma. Eur Radiol 2020;30:3862-8.
4. Liu H, Zhu S. Present status and future perspectives of preoperative portal vein embolization. Am J Surg 2009;197:686-90.
5. Takahashi H, Shigefuku R, Yoshida Y, et al. Correlation between hepatic blood flow and liver function in alcoholic liver cirrhosis. World J Gastroenterol 2014;20:17065-74.

Cite this article as: Tustumi F, Coelho FF, Herman P. Novel preoperative strategies to improve hepatocellular carcinoma resectability. HepatoBiliary Surg Nutr 2023;12(1):140-141. doi: 10.21037/hbsn-22-384